U. S. FOREST PRODUCTS LABORATORY

MADISON, WISCONSIN.

LIST OF PUBLICATIONS JANUARY 1 TO JUNE 30, 1940

Publications available for distribution at the Laboratory are marked with an asterisk (*). Blanket requests for publications will not be filled. Publications not marked with an asterisk are available as noted after the title.

Trade journals and magazines referred to, if not available in your local library, may be obtained from publishers listed on the last page.

Chemistry of Wood and Derived Products

The chemical utilization of wood and its forestry implications, by Arthur Koehler. Annual Outdoor Recreation Conference Proc. 1940.

Six to 7 percent of wood used in the United States is chemically converted, practically all going into pulpwood. Greatest profits in timber growing lie in integrated uses of all kinds of timber. More attention needed to the use of woods which require large quantities, as in the construction field.

Composition of hemicellulose isolated from maple wood, by R. L. Mitchell and G. J. Ritter. Jour. Amer. Chem. Soc., May 13, 1940.

Lignin-free hemicelluloses were isolated from maple holocellulose, which contains both the readily soluble and more insoluble hemicelluloses. The hemicellulose fractions were composed principally of xylan, associated with varying amounts of uronic acid anhydride and hexosan. Minimum molecular weights for the fractions ranged in value from 1,000 to 10,500.

*Hydrogenation of lignin in aqueous solutions, by E. E. Harris, J. F. Saeman, and E. C. Sherrard. Indus. & Eng. Chem., Indus. Ed., Mar. 1940. Same, Mimeo. R1219. Summary in Paper Indus. & Paper World, Oct. 1939.

Lignin reacted with hydrogen in aqueous solution in the presence of Raney nickel to give colorless cleavage products comprising methanol, propylcyclohexane, hydroxy derivatives of propylcyclohexane, alkali-soluble resins, and an alkali-insoluble resin.

The oxidation of creosote: its significance in timber treating operations, by M. F. Hudson and R. H. Baechler. A.W.P.A. Proc. 1940.

Coal-tar creosotes, especially those high in tar acids, are susceptible to oxidation under conditions prevailing in the pressure treatment of wood. Oxidation produces changes in the physical and chemical properties covered by present-day specifications, but does not seriously affect the toxicity.

*Recent developments in the chemical utilization of wood, by C. P. Winslow. North Texas State Teachers' College, Denton, Tex. 1940.
Summarizes accomplishments in the experimental plastics from wood waste, corrugating boards from blackjack oak and red gum, newsprint from southern gum and pine in mixture, production of chemical by-products and pulp by hydrogenation of wood, chemical plasticization of oak wood, and discovery of high alpha cellulose yield possible from wood holocellulose.

*Simultaneous production of wood pulp and the conversion of the noncellulosic constituents of wood into alcohols, oils, and resins, by E. E. Harris and E. C. Sherrard. Indus. & Eng. Chem., June 1940. Same, Mimeo. R1218.
Hydrogen, in the presence of a catalyst, converts wood chips, suspended in an aqueous alkaline solution, into a cellulosic pulp, suitable for paper making, and into hydrogenation products consisting of alcohols, such as methanol, propanol and glycerin, oils of the propylcyclohexane series and hydrogenated lignin resins.

Treatment of wood with aqueous solutions: effect of wetting agents, by A. J. Stamm and W. H. Petering. Indus. & Eng. Chem., Indus. Ed., June 1940. Summary in Paper Indus. & Paper World, Oct. 1939.
Wetting agents are shown to be of no value in increasing the rate of absorption of water or the rate of swelling of dry wood under ordinary soaking conditions. This is due to the fact that wetting with water is more rapid than the capillary absorption or the swelling.

Coatings

*Borax fire-retardant paints, by Arthur Van Kleeck. Forest Products Laboratory Mimeo. R1224, Apr. 1940.
Presents typical formulas of fire-retardant borax-containing paints developed at the Forest Products Laboratory and describes behavior after exposure to various humidity conditions.

Retort courteous (to an editorial): it needs more than a formula, by F. L. Browne. Paint Indus. Mag., Mar. 1940.
Contents indicated by title.

Containers

*Bending tests of corrugated boards and their significance, by T. A. Carlson. Fibre Containers, Mar. 1940; Paper Trade Jour., Feb. 22, 1940. Summary in Paper Indus. & Paper World, Apr. 1940.
Reports progress on a fundamental study of fiber boards for shipping containers. Static bending tests are described, and the relative influence of stiffness of liners and shear rigidity of corrugations on the stiffness of corrugated boards is shown for various span-depth ratios. Effect of overhang on the results of bending tests is discussed.

Glues

*Water-resistant glues. Forest Products Laboratory Tech. Note F-4, revised Jan. 1940.
Contents indicated by title.

Pulp and Paper

Effect of acid concentration and temperature schedule in pulping resinous woods, by G. H. Chidester and J. N. McGovern. Paper Trade Jour., Mar. 7, 1940; South. Pulp & Paper Jour., June 1940.
Use of relatively high sulfur dioxide concentration and low cooking temperatures, together with a long cooking time, had a beneficial effect in the reduction of jack pine, Douglas fir, and southern pine by the sulfite process.

Forest Products Laboratory research on pulp wood and pulp, by C. P. Winslow. Paper Mill & Wood Pulp News, Mar. 9, 1940.
Interprets variability of growth rate, heartwood and sapwood, and springwood and summerwood, in terms of possible grading and selection of pulpwood, especially southern pines, to bring about more diversified and increased use of American woods. Also summarizes recent chemical achievements in wood utilization at the Forest Products Laboratory.

*Screen analysis as an aid in pulp evaluation, by E. R. Schafer. Forest Products Laboratory Mimeo. R884, revised Nov. 1939.
Contents indicated by title.

Seasoning of Wood

Chemical seasoning of wood, results of recent research, by Rolf Thelen. Canada Lbrman., Jan. 1, 1940.
A summary of field and laboratory results in the field of chemical seasoning. Principles of the process are discussed and factors influencing its commercial application are considered.

*The detection and relief of casehardening. Forest Products Laboratory Tech. Note 213, revised May 1940.
Contents indicated by title.

*Uniformity of air distribution in a lumber dry kiln, by O. W. Torgeson. South. Lbrman., Apr. 15, 1940.
Tests in a forced-circulation kiln showed that greater efficiency and uniformity of air distribution can be secured by: (1) increasing the width of the entering air space, (2) aligning the entering-air edges of the boards, (3) reducing the thickness of stickers, and (4) avoiding sudden changes in air direction.

Wood in Construction

*ASTM structural timber grading standard now approved by ASA as American standard, by L. J. Markwardt. Indus. Standardization, Mar. 1940.

The development of structural timber grading, assuring definite strength classification and permitting assignment of definite working stresses, has been the result of gradual development and improvement extending over many years. Article describes the origin and development of structural timber grading in the United States, and discusses its import and application.

Current problems in study of condensation, by L. V. Teesdale. Natl. Mineral Wool Assn. Proc. May 16, 1940.

Higher humidities are maintained, intentionally or accidentally, in modern homes than was common a few years ago and as a result condensation problems arise. Protection against condensation becomes a part of the problem of design and construction. Experimental research proves that vapor barriers can be installed that offer satisfactory protection at low cost.

*Designing for strength of flat panels with stressed coverings, by J. A. Newlin. Forest Products Laboratory Mimeo. R1220, Mar. 1940.

Tells why the ordinary formulas of mechanics do not apply without modification to panels with stressed coverings, and why construction features which might easily be considered of no importance may change the strength greatly.

Recent developments in timber construction and use, by L. J. Markwardt. Eng. Soc. of Wisconsin Proc. 1940.

Presents a summary of recent progress in the use of wood, of interest to engineers and architects. Briefly describes modern metal connectors, laminated arches, plywood, improved glues, compregnated wood, and similar developments opening new possibilities for wood use.

Size of knot, by J. A. Newlin. Wood Pres. News, Apr. 1940.

Grading rules for timbers and lumber usually specify the maximum knots allowed. It is not always easy to trace the outline of the knot on the surface of the timber. The article gives photographs and methods for determining the outline of a knot, as a basis for size measurement.

*Supplement to U. S. Dept. Agr. Misc. Pub. 185, "Guide to the grading of structural timbers and the determination of working stresses," by T. R. C. Wilson. Forest Products Laboratory Mimeo. R1225, May 1940.

Provisions for structural dimension (joist and plank) in grades having less than 50 percent of the strength of clear material. Employs principles similar to those described in Miscellaneous Publication 185 for material at strength levels of 50 percent or more. Designed to improve grades for dimension lumber used in house construction.

Fungus Defects in Wood

*The effect of Peniophora gigantea and Schizophyllum commune on strength of southern yellow pine sapwood, by C. Audrey Richards and Mae Spradling Chidester. A.W.P.A. Proc. 1940.

Peniophora gigantea reduced the toughness of pine as much as 35 percent in these tests. Hence, it should no longer be considered harmless.

*Stains of sapwood and sapwood products and their control, by T. C. Scheffer and R. M. Lindgren. U. S. Dept. Agr. Tech. Bul. 714. Mar. 1940.

Sapwood stains caused by fungi during seasoning do not ordinarily materially weaken the lumber, but due to its appearance most buyers regard stained lumber as inferior. Staining may be prevented by the use of organic mercurials and chlorinated phenols, thereby reducing overcutting to supply the demand for bright lumber, veneer, and other products.

Wood Preservation

*Fire tests on wood doors, by G. C. McNaughton and T. J. Martin. Amer. Bldr. & Bldg. Age, Dealers Ed., Mar. 1940.

Gives results of fire penetration tests on full-sized, flush-type, wood doors of four designs. Unfilled hollow doors failed in about 10 minutes while some solid doors lasted as long as 44 minutes. Still longer resistance is possible by proper design and construction.

*International termite exposure test: 11th progress report, by G. M. Hunt and T. E. Snyder. A.W.P.A. Proc. 1940.

Presents the current results of comparative tests on the effectiveness of a large number of preservatives in protecting treated wood specimens in the ground from termites and decay. Most of the specimens are exposed at Barro Colorado Island (Canal Zone), but some are in Australia, Honolulu, and South Africa.

*Methods of applying wood preservatives. Forest Products Laboratory Mimeo. R154, revised Apr. 1940.

Contents indicated by title.

*Relation of wood density to rate of temperature change in wood in different heating mediums, by J. D. MacLean. A.W.P.A. Proc. 1940.

Discusses the rate of temperature change in both softwoods and hardwoods heated in steam, water, and coal-tar creosote. Data and curves are presented for the determination of the temperature at various distances from the surface of round and sawed timbers under different heating conditions.

*Tire-tube method of fence post treatment, by R. M. Wirka. Forest Products Laboratory Mimeo. R1158, revised Jan. 1940.

Contents indicated by title.

Wood Structure

*The identification of Douglas fir wood. Forest Products Laboratory Tech. Note 198, revised Mar. 1940.
Contents indicated by title.

Miscellaneous

Falling of timber with less damage, by J. A. Newlin. Timberman, June 1940.
Article deals with the influence of the lay and nature of the ground and the striking of other objects on the extent and character of damage to the trees being felled.

Kiln schedule for extracting red pine seed from fresh and stored cones, by R. C. Rietz and K. E. Kimball. Jour. Forestry, May 1940.
Speed in drying red pine cones is accomplished in forced-air circulation driers through the use and control of high temperatures and low relative humidities. Fresh cones were heated at 150° F. for 9 hours and air-dried cones were heated at 170° F. for 5 hours to produce good yields of uninjured seed.

Wood in modern warfare, by D. G. Coleman. Amer. Forests, Jan. 1940.
Modern warfare has not outgrown the use of wood. On the contrary wood and its products find wide utility in every branch of the fighting services.

Publishers of Trade Journals and Magazines Included in References

Amer. Forests, 919 - 17th St., NW., Washington, D. C.
Amer. Bldr. & Bldg. Age, 105 W. Adams St., Chicago, Ill.
Annual Outdoor Recreation Conference, Mass. State College, Amherst, Mass.
A.W.P.A. Proceedings, Amer. Wood-Preservers' Assn., 1427 Eye St., NW., Washington, D. C.
Canada Lbrman., 347 Adelaide St., W., Toronto, Ont., Can.
Engineering Society of Wisconsin, City Hall, Milwaukee, Wis.
Fibre Containers, 228 N. LaSalle St., Chicago, Ill.
Indus. & Eng. Chemistry, 706 Mills Bldg., Washington, D. C.
Indus. Standardization, Amer. Standards Assn., 29 W. 39th St., New York City.
Jour. Amer. Chemical Society, 12 Oxford St., Cambridge, Mass.
Jour. Forestry, 839 - 17th St., Washington, D. C.
Natl. Mineral Wool Assn., Rm. 2906, 1270 - 6th Ave., New York City.
North Texas State Teachers' College, Denton, Tex.
Paint Industry Magazine, 220 S. 16th St., Philadelphia, Pa.
Paper Industry & Paper World, 333 S. Michigan Ave., Chicago, Ill.
Paper Mill & Wood Pulp News, 1440 Broadway, New York City.
Paper Trade Jour., 15 W. 47th St., New York City.
South. Lbrman., Nashville, Tenn.
South. Pulp & Paper Jour., Mortgage Guarantee Bldg., Atlanta, Ga.
Timberman, 329 Oak St., Portland, Ore.
Wood Preserving News, 111 W. Washington St., Chicago, Ill.

U. S. FOREST PRODUCTS LABORATORY

MADISON, WISCONSIN.

LIST OF PUBLICATIONS JULY 1 TO DECEMBER 31, 1940

Publications available for distribution at the Laboratory are marked with an asterisk (*). Blanket requests for publications will not be filled. Publications not marked with an asterisk are available as noted after the title.

Trade journals and magazines referred to, if not available in your local library, may be obtained from publishers listed on the last page.

Chemistry of Wood and Derived Products

*Hydrogenation of lignin, by E. E. Harris. Paper Trade Jour., Dec. 12, 1940; abstracted in Pacific Pulp & Paper Indus., Sept. 1940.

Lignin, isolated by the use of organic solvents, by the sulfuric acid method, or recovered from soda pulping liquors, was hydrogenated in water or dioxan, giving methanol, derivatives of propyl cyclohexane, and a high-boiling resin. Hydrogenation of wood chips gave a pulp, alcohols, glycols, and partially hydrogenated lignin.

*Treatment of wood with aqueous solutions: Effect of wetting agents, by A. J. Stamm and W. H. Petering. Indus. & Eng. Chem., Indus. Ed., June 1940; summary in Paper Indus. & Paper World, Oct. 1939; Mimeo. R1229.

Wetting agents are shown to be of no value in increasing the rate of absorption of water or the rate of swelling of dry wood under ordinary soaking conditions. This is due to the fact that wetting with water is more rapid than the capillary absorption or the swelling.

*Utilization of waste lignin: Current chemical research, by E. E. Harris. Indus. & Eng. Chem., Indus. Ed., Aug. 1940; Mimeo. R1236.

Chemical research on the fundamental aspects of lignin from waste products is helping in the solution of this problem. A knowledge of the various external groups — hydroxyl, methoxyl, and unsaturated — aids in foretelling the reactions of lignin. Hydrogenation of lignin suggests a way of converting lignin waste into valuable products.

Coatings

*Aluminum coatings for moisture proofing wood. Forest Products Laboratory Tech. Note 228, revised Aug. 1940.

Contents indicated by title.

Glue and Plywood

*Glues for wood in archery. Forest Products Laboratory Tech. Note 226, revised Sept. 1940.
Contents indicated by title.

*Some causes of warping in plywood and veneered products, by Don Brouse. Wood Products, Oct. 1940.
Shows the relation of diagonal grain, crossgrain, veneer thickness, veneer species, and other characteristics on warping and cupping, and the necessity of correctly balanced construction and proper handling, in manufacturing panels that must remain flat.

Mechanical Properties

Spring suspended spherical bearing block for compression tests, by L. J. Markwardt and R. F. Luxford. A.S.T.M. Bull., Aug. 1940.
Describes two new types of bearing blocks for improving loading conditions and facilitating the necessary block adjustment. One bearing block is adapted for testing material such as wood, and one for more rugged work where protection from dust and grit is essential. Detailed drawings are included.

Preservation

*Determining penetration of wood preservatives, Forest Products Laboratory Tech. Note 163, revised Sept. 1940.

*Treating Christmas trees to make them safe from fire, by Arthur Van Kleeck. South. Lbrman., Dec. 15, 1940; Mimeo. R1244.
Most practical method found was to obtain reasonably fresh trees and keep them standing in water. Use of chemicals was not found advantageous.

Pulp and Paper

Conversion of holocellulose to pulp suitable for high-grade papers, by G. J. Hajny and G. J. Ritter. Paper Trade Jour., Nov. 28, 1940; abstracted in Pacific Pulp & Paper Indus., Sept. 1940.
A pulp prepared by treating white spruce holocellulose with dilute sodium hydroxide solution constituted 59.4 percent of the original wood. It had an alpha cellulose content of 87.6 percent and a viscosity of 40 centipoises. The pulp produced test sheets of high-grade paper having better strength properties than sheets made from commercial pulps.

Hardwoods offer new pulping opportunities, by M. W. Bray and G. H. Chidester. Paper Mill & Wood Pulp News, Nov. 16, 1940.
Utilization of southern and northern hardwoods offers a promising source of raw material for the pulp industry, needed especially now to make up shortages arising from the war. Methods are proposed for increased utilization of hardwoods in the high-tonnage fields.

Hardwoods and the semichemical pulping process, by C. E. Curran. South. Pulp & Paper Jour., Oct. 1940; Pulp & Paper Mag. of Canada, Sept. 1940; Fibre Containers, Oct. 1940.

Application of the neutral sulfite semichemical process to southern and northern hardwoods was successful in producing pulps for use in mixture with pine groundwood for newsprint. Semichemical pulps were suitable for boards. Hardwood neutral sulfite semichemical pulps were bleached to a brilliant white for high-grade papers.

Statistical survey of rosin as used in the paper industry, by P. K. Baird and C. E. Curran. Paper Trade Jour., July 4, 1940.

Rosin has been the principal sizing material in paper for five decades, this use generally controlling its market price. Technically it is in a strong position with no real economic substitutes at its low cost. Its abundant supply and freedom from use problems should keep it dominant in this field.

Sulfate pulping of western white pine, Pinus monticola, by J. S. Martin and M. W. Bray. Paper Trade Jour., Dec. 19, 1940; abstracted in Pacific Pulp & Paper Indus., Sept. 1940.

Western white pine is more readily reduced by the sulfate process than by the soda process for the production of strong bleachable, high-yielding pulps. The location of wood in the tree has a bearing on the physical properties of the pulps.

Wetting agents in sulfite pulping: The effect of certain wetting agents on the sulfite penetration and pulping of various woods, by J. N. McGovern and G. H. Chidester. Paper Trade Jour., Dec. 12, 1940.

Sulfite cooking acid penetration into heartwood and sapwood chips from western hemlock, southern pine, and Douglas-fir was unaffected by representative wetting agents. Screenings from less easily pulped pine and fir heartwood were somewhat higher in presence than absence of these agents. Pulp bleachabilities and strength properties showed no changes.

Seasoning of Wood

Chemical seasoning increases percentage of sound cuttings, by W. K. Loughborough. Canada Lbrman., Sept. 1, 1940.

Overcup oak boards and planks ranging in thickness from 1 to 3 inches, salt-treated and untreated controls, were air dried or kiln dried. Detailed methods for treating and drying are given. Data are graphically shown comparing the yield in the form of squares of air-dried and kiln-dried treated and untreated planks.

*New approach to the formulation of hardwood dry kiln schedules, by E. C. Peck. South. Lbrman., Dec. 15, 1940.

Discusses and illustrates the use of "stress" rather than average moisture content, in the formulation of kiln drying schedules for hardwood lumber.

*The reversible-circulation internal-fan kiln, Forest Products Laboratory Tech. Note 208, revised Nov. 1940.

Contents indicated by title.

Variation in equilibrium-moisture content in a typical large Douglas-fir storage shed, by E. C. Rietz. West Coast Lbrman., Dec. 1940.

Moisture content as a quality factor in the production of lumber is of steadily increasing importance. The storage of vast volumes of well kiln-dried stocks is the immediate problem; simple procedures are not manifest. A study of equilibrium moisture conditions within a storage shed is described; the magnitude of the problem is indicated.

Wood in Construction

*Durability of laminated wooden barn rafters. Forest Products Laboratory Mimeo. R1232, Aug. 1940.

Brief question-and-answer discussion with emphasis on moisture, decay, and glue durability.

Formula for columns with side loads and eccentricity, by J. A. Newlin. Bldg. Standards Monthly, Dec. 1940.

Presents relatively simple and fairly accurate formulas for calculating the maximum direct compressive load which can be put upon an eccentrically loaded column or one with side loads. Also gives the derivation of more accurate formulas and indicates the approximations made for simplification.

How to anchor against storm damage, by J.A.Newlin. Amer.Bldr.,Sept.1940.

The most common types of wind damage to houses are due to lack of anchorage and tying together of the parts. Much of the damage can be avoided without change in size of structural members.

*Moisture condensation in barns, by L. V. Teesdale. Forest Products Laboratory Mimeo. R1231, Aug. 1940.

Condensation is common in buildings housing live stock in the colder parts of the country and is responsible for much of the maintenance expense. Methods of protection and prevention involve the use of insulation, ventilation, and vapor barriers.

*New England eastern white pine as a house framing material, by E.C.O. Erickson. Wood Construction, Dec. 1, 1940; Mimeo. R1241.

Summarizes racking tests of eastern white pine wall panels salvaged from the New England blow-down, in comparison with panels sheathed and braced with denser softwoods. Gives methods of nailing and bracing the white pine panels to afford the strength and rigidity obtained with commonly-used denser softwoods.

*Pictured good and poor practice in frame house construction details, Forest Products Laboratory Tech. Note 242, Aug. 1940.

Wood Structure

*More about loosened grain, by A. Koehler. South.Lbrman., Dec.15,1940.

Discusses loosened grain resulting from wear, turning, planing, and sanding under too much pressure, springwood crushing and its greater longitudinal shrinkage. Remedies suggested: use of sharp knives, edge-grain material, avoiding undue compression and selection of bark side instead of pith side of face.

Wood Pathology

Effect of blue stain on specific gravity and strength of southern pine, by A.D.Chapman and T.C.Scheffer. Jour.Ag.Research, July 15,1940.

Tests of several strains of important blue-stain fungi showed that although all strength properties appeared to be lowered generally, only toughness was affected to the extent of general practical significance.

Pink stain of wood caused by a species of Geotrichum, by Mae Spradling Chidester. Phytopathology, June 1940.

A species of Geotrichum stains pine sapwood and heartwood pink or light jasper red. The same fungus produced a similar stain in silver fir, yellow birch, black spruce, Douglas-fir, red oak, cypress, and western hemlock.

Wood Utilization, Logging, and Milling

Lumber from old-growth versus lumber from second-growth in Pinus strobus, by E. M. Davis. Jour. Forestry, Nov. 1940.

Old-growth yields twice the good lumber and half the poor lumber second-growth yields. Second-growth poor quality results chiefly from large knots which degrade more than small ones during seasoning and planing. Knots were sounder in second-growth, and shake and decay were less common.

A new approach to hardwood log grades, by A. O. Benson. South. Lbrman., July 1, 1940.

The approach suggested is a change from present log grades based on log surface defects to a procedure whereby logs are appraised on the basis of the clear cutting areas between defects. For the latter method greater simplicity and consistency are claimed, and some figures in proof are submitted.

*Possibilities of enlarged utilization of forest products in the deep South, By T. R. Truax. South. Lbrman., Dec. 15, 1940.

Large volumes of low-grade and little-used hardwoods, low lumber consumption, and need for profitable employment make enlarged utilization important. Much progress seems possible through extension of wood-using industries and further research.

*Small sawmill improvement: Practical pointers to field agencies: Small sawmill accounting, by C. J. Telford. Forest Products Laboratory Mimeo. 899-12, Dec. 17, 1940.

Elementary accounting system with instructions and suggested forms for recording costs and receipts, for computing the balance sheet and determining the net profit or loss from yearly business.

*Small sawmill improvement: Practical pointers to field agencies: Short-cut method of finding the minimum sized tree that pays its way, by C. J. Telford. Forest Products Laboratory Mimeo. R899-13, Dec. 17, 1940.

Outline of procedure and suggested forms permitting 3 men in about 3 days to complete essential field work.

*Suitability of woods for use in barns and other farm structures. Forest Products Laboratory Tech. Note 246, Oct. 1940.
Contents indicated by title.

*Suitability of woods for use in the frame house. Forest Products Laboratory Tech. Note 245, Oct. 1940. Contents indicated by title.

Miscellaneous

*Falling of timber with less damage, by J.A.Newlin. Timberman, June 1940.
Observations in Douglas-fir region on the influence of the lay and nature of the ground and the striking of other objects on the extent and character of damage to the tree being felled.

*General observations on the nailing of wood. Forest Products Laboratory Tech. Note 243, Aug. 1940.
Contents indicated by title.

*How to make a laminated diving board. Forest Products Laboratory Tech. Note 244, Aug. 1940.
Contents indicated by title.

*Properties, selection, and suitability of woods for wood-working, by D. G. Coleman. Indus. Arts & Voca. Education, Dec. 1940, to be continued. (Preprints of the entire article available.)
Classifies various woods into groups according to hardness, shrinking, ease of working, nailing, stiffness, odor and taste, surface characteristics, and several other properties.

Publishers of Trade Journals and Magazines Included in References

Amer. Bldr., 105 W. Adams St., Chicago, Ill.
A.S.T.M. Bulletin, 260 S. Broad, Philadelphia, Pa.
Bldg. Standards Monthly, 124 W. 4th St., Los Angeles, Calif.
Canada Lbrman., 347 Adelaide St., W., Toronto, Ont., Can.
Fibre Containers, 228 N. LaSalle St., Chicago, Ill.
Indus. Arts & Voca. Education, 540 N. Milwaukee St., Milwaukee, Wis.
Indus. & Eng. Chem., 706 Mills Bldg., Washington, D. C.
Jour. Ag. Research, U. S. Dept. Ag., Washington, D. C.
Jour. of Forestry, Mills Bldg., Washington, D. C.
Pacific Pulp & Paper Indus., 71 Columbia St., Seattle, Wash.
Paper Indus. & Paper World, 59 E. Van Buren St., Chicago, Ill.
Paper Mill & Wood Pulp News, 1440 Broadway, New York City.
Paper Trade Jour., 15 W. 47th St., New York City.
Phytopathology, Lancaster, Pa.
Pulp & Paper Mag. of Canada, Gardenvale, Que., Can.
Southern Lbrman., Nashville, Tenn.
Southern Pulp & Paper Jour., Mortgage Guarantee Bldg., Atlanta, Ga.
Timberman, 329 Oak St., Portland, Ore.
West Coast Lbrman., 71 Columbia St., Seattle, Wash.
Wood Construction, Green & Market Sts., Xenia, Ohio.
Wood Products, 431 S. Dearborn St., Chicago, Ill.